

# = BUILDING SAFETY = NEWS FROM THE INSPECTION DIVISION

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NEWSLETTER

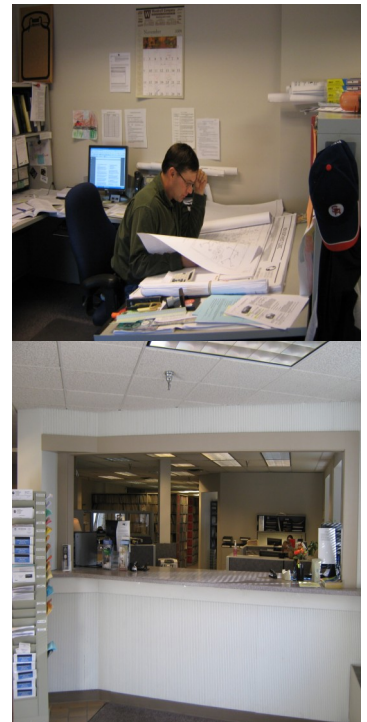
We continually receive, and wish to pass on, new information that impacts code users. We also try to not catch people off guard, or make complying with the code anymore difficult to understand and use than it may already be. We only wish to discuss relevant and timely concerns with our customers to make sure things are done correctly the first time around which will save time, energy, and ultimately money in a tough economy.

So, the idea of a newsletter was born. We will try to put together this newsletter a couple times per year to help keep our custom-

ers up to date with what is happening in the codes, nationally, and at the State level, and provide the most current information we have available.

We hope this improves the process and makes it better for everyone involved.

We will distribute our newsletters through the builder and contractor organizations throughout the community, as well as our annual lumberyard meetings, the home show, and other related functions. We will also post the current edition on the Building Safety website at: [www.rochestermn.gov/](http://www.rochestermn.gov/)



## THE INSPECTION DIVISION STAFF

## REMINDERS

- Building Safety main number is **328-2600**
- Office hours are Monday-Friday 8:00am to 5:00pm
- Inspections must be requested before 4:30 the prior day
- The office will be closed **Jan. 19, Feb. 16, and May 27**



Front row L to R: Dave Hyrkas, Steven Niedfeldt, Shaun Palmer, Gale Mount, Tim Saari  
Back row L to R Mark Sparks, Gary Dutton, Ed Schnell, Ray Goldsmith, Gary Schick, John Berg, Kirk Luthe

## **FINISH GRADE AND SOIL SEPARATION**

It is a well known fact that the drainage of bulk water away from dwelling foundations is crucial to the durability of a building as well as avoiding the source of numerous call backs from frustrated customers. Repairing the problem after the fact can be costly and difficult. The 2006 International Residential Building Code (IRC), as adopted by the Minnesota State Building Code, addresses the surface water drainage and the separation of soil from untreated wood components.

IRC Section 401.3 outlines the code requirements relating to finish grade and drainage around dwellings. The finish grade is a product of one of the very first site decisions made; *what is the height of the top of the foundation?* Most customers building on city lots are trying to minimize the driveway slope and/or the number of steps into the dwelling. This IRC section requires surface water be diverted to the storm sewer or other point of collection and shall not create a hazard. Yards must be finish graded to drain water away from the foundation. The code requires minimum drainage slopes away from building foundations. The code prescribes a slope away from the foundation with a drop of 6 inches within the first 10 feet. This portion of the code is fairly black and white *BUT* not all situations lend themselves to this application. What does the code say when a lot line is closer than 10 feet to the dwelling or the yard rises away from the dwelling? The exception to Section 401.3 addresses these situations. If the distance to a lot line is less than 10 feet the code requires a minimum slope of 5% which is equal to a six inch drop in 10 feet. If the slope away from the dwelling leads to a swale that will divert the surface water to the storm sewer these swales must have a 2% slope if they fall within 10 feet of the foundation. A 2% slope is a 1/4 inch to the foot. The code also discusses impervious surfaces next to foundations. A requirement for sidewalks, patios, and other impervious surfaces to have at least a 2% slope away from the foundation. It should be explained to the dwelling owners that the approved slope can change due to soil settlement and is part of the dwelling maintenance.

The second item that must be considered when determining the top elevation of the foundation is the separation of wood components from soil. In IRC Section 319.1 *Protections Against Decay* the protection of wood components is discussed to prevent deterioration and assure building durability. The most pertinent part of this code section to this discussion is the requirement prescribing a six inch separation of soil from wood components; the code lists wood siding, sheathing, and wall framing.

So what does all this code talk mean? When the top of the foundation is set at the proper height and all lot constraints are taken into consideration, the finish grade (soil) must be a minimum of six inches away the nearest untreated wood component; usually untreated sheathing fastened to a treated sill plate (vinyl or steel siding). Generally the siding is lapped approximately one inch below the top of the foundation wall. When the building inspector checks for this separation they measure from the soil to the bottom of the siding and add one inch for siding overlap. If sod is not in place, the soil thickness of the sod must be considered. The other code consideration is a proper slope away from the foundation wall; the six inches in 10 feet discussed above. If the foundation height is set properly these code requirements will be met. As previously mentioned, any impervious surface adjacent to the foundation must be sloped a minimum of 2% (1/4" to the foot) away from the foundation. In the end, one of the first decisions made onsite will have ramifications on the final grade of a dwelling.





## TANKLESS WATER HEATERS

The use of a “listed” tankless water heater in the City of Rochester is most certainly approved, as long as the installation meets the requirements of the Minnesota Plumbing Code. That is where the issues with the use of these appliances lie.

In short, a water heater is required to be able to furnish an adequate supply of hot water to all fixtures simultaneously in the residence or business in which the appliance is being installed.

By their very design, tankless water heaters have trouble meeting this requirement. Since there isn't a reservoir of water, the tankless heater has a high output gas burner that heats a small amount of water at one time raising the incoming water temperature, of approximately 50 degrees, to an outgoing temperature of approximately 110 degrees. This is accomplished by the use of flow restrictors built into the appliance limiting the gallons per minute of flow thru the appliance anywhere from 2 to 8 gallons per minute depending on its size and BTU output.

To comply with the code requirements for hot water demand, most homes would require multiple units to be installed to meet the home's demands.

And excellent use for this appliance would be in an addition or remote restroom where it serves a minimal number of fixtures. It must also be noted that the larger units that are capable of heating 6 to 8 gallons per minute also have a large BTU demand which may require a larger gas service, that some homes may not have available. Venting issues may also complicate the installation.

To recap, tankless water heaters may be used and installed in the City of Rochester when all conditions of use are met.



“tankless water heaters are approved for installation in the City of Rochester when all conditions of use are met”

## WATER DISTRIBUTION



It is the plumbing contractor's responsibility to size the water distribution system in accordance with Minnesota Plumbing Code, Section 4715.3800 subparts 1 thru subpart 9. This has become increasingly more critical as the city expands and has extreme pressure variances from the mid 20 PSI to 110 PSI. Other systems that may also have a direct impact on the sizing are irrigation systems, and the new proposed fire suppression systems, depending on the design. In areas of low pressure, a water pressure booster system may be required. If so it must be installed as outlined in Minnesota Plumbing Code Section, 4715.1810 subpart 5.

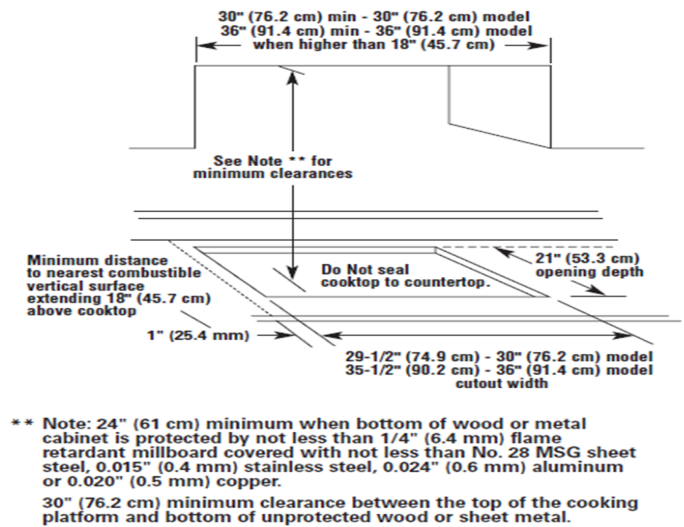
## WATER HEATER INSTALLATION

Past practices have seen water heaters installed 5' to 6' above the floor, mop sinks, or other locations. Minnesota Plumbing Code Section 4715.2240 requires water heaters to be in a “readily accessible” location. For an installation to comply with this requirement, the water heaters may not be installed on platforms higher than 18". Water heaters installed in mechanical rooms and closets, must not have any other equipment installed in front of them.



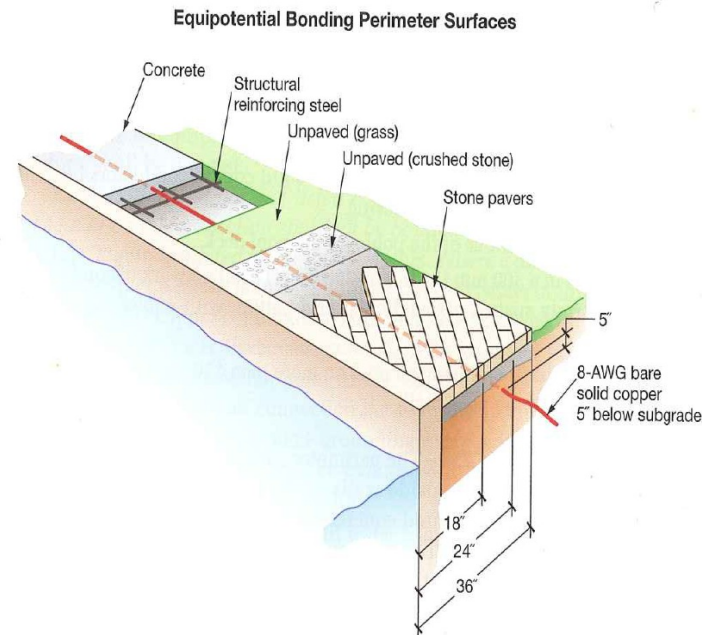
## COOKTOP CLEARANCE TO COMBUSTIBLES

The Minnesota Mechanical Code requires that cooking appliances that are designed for permanent installation, including ranges, ovens, stove, broilers, grills, fryers, griddles and barbecues, shall be installed in accordance with the manufacturer's instructions. In order to complete mechanical inspections, the required installation instructions must be available to the inspector. (Minnesota Mechanical Code Section 917.1)



### Example of manufacturer's installation instructions

## HOT TUB BONDING GRIDS



The 2008 National Electric Code (NEC) added requirements to reduce potential electrical hazards for all hot tub installations. Whether they are indoors or outdoors, the installation of a hot tub needs to follow the manufacturer's installation instructions and all applicable codes. The NEC has specific requirements that are found in article 680 of the latest adopted version by the State of Minnesota, which outlines the requirement for the installation of an equipotential bonding grid around the perimeter of the hot tub.

The Installation of the grid allows for the use of structural reinforcing steel in poured concrete to be used as part of the bonding grid. The Code allows an alternate means which utilizes a #8 bare solid copper wire to create the required bonding grid. The installation of a hot tub on an existing concrete surface does not allow the installer to forego the requirement for the bonding grid. It is imperative that all vendors and contractors involved with the hot tub installation understand the bonding grid requirements. If you have any questions or comments regarding this article, please feel free to contact our office.

## CSST INSTALLATION ISSUES

Fuel gas piping materials and their installation requirements have changed a great deal in a short period of time. With newer products like corrugated stainless steel tubing (CSST), these changes have happened so often, it is difficult for users to keep current on installation specifications. The manufacturer's of CSST have typically updated and revised their installation manuals each year. Due to concerns of the effect of lightning strikes on these products, manufacturers have added required safeguards in these manual and changes even in mid-year technical bulletins. To compound the confusion, requirements are not consistent between manufacturers. In 2008 there were also isolated incidences of vandalism in Rochester to CSST installations that we had not seen with traditional gas piping materials. We want to alert users of these products that it is your responsibility to have and apply the most current installation requirements, and that some of these requirements become effective the day they are published. Your supplier should be able to provide all current installation manuals and current installation updates, and we are always available if further clarification is needed.

